

ABSTRACT

A charge pump method and apparatus is described having various aspects. Noise injection from a charge pump to other circuits may be reduced by limiting both positive and negative clock transition rates, as well as by limiting drive currents within clock generator driver circuits, and also by increasing a control node AC impedance of certain transfer capacitor coupling switches. A single-phase clock may be used to control as many as all active switches within a charge pump, and capacitive coupling may simplify biasing and timing for clock signals controlling transfer capacitor coupling switches. Any combination of such aspects of the method or apparatus may be employed to quiet and/or simplify charge pump designs over a wide range of charge pump architectures.